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Modeling Safe Sleep: An Effort to Reduce Sudden Unexpected Infant Deaths

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ABSTRACT

Each year, about 4,000 infants die unexpectedly during sleep time, from SIDS, accidental suffocation, or unknown causes. SIDS is the leading cause of death in infants between 1 month and 1 year of age.

- National Institute of Child Health and Human Development



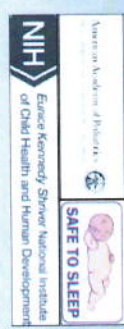
AIM: The aim of this quality improvement process is to improve safe sleep modeling in the Newborn Nursery and Neonatal Intensive Care Unit (NICU) by improving health provider and parent education, standardizing safety practices, and correcting incorrect modeling of sleep environments during inpatient admission. Secondary aim is reduction of the local rate of Sudden Unexpected Infant Death (SUID) in a highly affected metropolitan community.

BACKGROUND: There has been a recent spike in SUID nationally which is disproportionately elevated in our community with a large proportion of deaths that have been attributed to unsafe sleep practices. The County Child Fatality Review Team reached out to local facilities to implement an outreach program to address the rising rates of SUID. Most facilities surveyed lacked a standardized system of modeling safe sleep in the NICU and Newborn Nursery.

METHODS: The project was implemented at a large Level III NICU with associated 1800 deliveries annually to the Newborn Nursery service. A standard operating procedure using the revised AAP and NICHD guidelines was implemented in the Nursery and NICU to model safe sleep environments prior to discharge. Bedside placards with visual safe sleep reminders and standardized order sets were created for each department. Comprehensive mandatory education was provided to nurses and providers via online modules and didactic teaching sessions. Direct bedside audits were completed for safe sleep modeling with documentation of exceptions and readiness for safe sleep recorded. The audit assessed elevating the head of the bed, income in supine, the presence of stuffed animals, extra blankets, baby blankets, income in a nest, income not being swaddled, the use of positioning devices, and co-sleeping.

RESULTS: Comprehensive provider education and safe sleep requirements were implemented from October 2015 to January 2016. Quarterly bedside audit was conducted throughout 2016 utilizing a checklist for all infants meeting criteria for readiness. Incremental improvement of appropriate safe sleep modeling was noted, with neonates modeling safe sleep 70.8%, 72%, 89.9%, and 98.3% by quarter respectively. Each aspect of the audit was analyzed using a chi-squared test with head elevation, extra blankets, nesting, not swaddling, and use of positioning devices were all statistically significant ($p < 0.001$).

STAFF EDUCATION



1. NICHD and AAP Recommendations

- AAP 2011 Policy Statement
- Pediatrics 2011 Nov;128(5):1038-9. doi: 10.1542/peds.2011-2384
- NICHD Public Education Campaign
- <https://www.nichd.nih.gov/act/Pages/default.aspx>

2. Nursing Education

- Online training and free nursing CE provided via NICHD
- <https://www.nichd.nih.gov/act/Pages/default.aspx>

Department	Caregivers	% Completion
5 East (Antepartum)	29/29	100%
5 West (Mother/Baby)	34/34	100%
Labor & Delivery	71/71	100%
NICU	60/60	100%
PEDS	36/36	100%
PICU	24/24	100%

3. Physician Education

- Pediatric residency and Neonatal-Perinatal Fellowship
- Group education and direct on-rotation training provided

Department	Caregivers	% Completion
Pediatric (residents)	42/42	100%
Neonatal (fellows)	6/6	100%
Neonatal (staff)	6/6	100%

INPATIENT CHANGES



1. Patient Safety Placards

- Newborn and NICU services
- Bedside reminder of modeling safe sleep practices
- Implemented with standardized order sets

2. Risky Sleep Stacks In-hospital and Take-home

- Newborn, NICU, Pediatric, PICU services
- Newborn and preemie sizes utilized for stable infants in place of excess blankets, beanbag, pillow rolls, and other unsafe objects

3. Parent Education

- Newborn and NICU services
- Revision of discharge teaching by nursing and physician providers
- Discharge handouts and video with NICHD recommendations
- Review of recommendations at newborn follow up and subsequent pediatric clinic appointments

4. Revision of Standard Operating Policies

- Newborn and NICU services
- Implementation of AAP and NICHD guidelines into standard care practices and education

AUDIT RESULTS

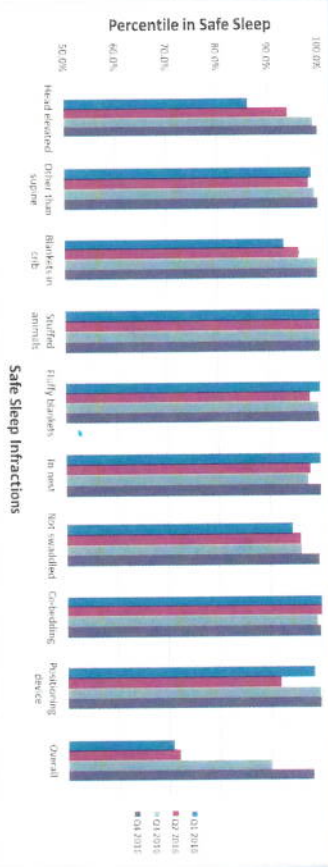


Figure 1: Bedside Audit Compliance by Quarter (%)

NATIONAL CERTIFICATION



1. National Certification as a Safe Sleep Champion 20 July 2016
San Antonio Military Medical Center is the FIRST hospital in Texas to receive certification

The National Safe Sleep Hospital Certification Program was created in partnership with leading infant health and safety organizations such as All Baby & Child, The National Center for the Review & Prevention of Child Deaths, Association of SIDS and Infant Mortality Programs, Kids in Danger, Children's Safety Network, American SIDS Institute, Charlie's Kids, CJ Foundation for SIDS, and numerous state American Academy of Pediatric chapters and health departments

CONCLUSIONS:

Almost thirty percent of inpatient neonate's cribs did not meet criteria for modeling safe sleep at the initiation of quality improvement project.

Head of the bed elevations were the most common violation. After re-education and visual reminders all areas of safe sleep improved greatly with a 98.3% rate of modeling safe sleep in the NICU and nursery environments over a 1 year assessment period.

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